XV. *An Account of Ambergriſe, by Dr.* Schwediawer; *preſented by Sir* Joſeph Banks, *P. R. S.*

Read February 13, 1783.

AMBERGRISE, or properly ſpeaking *Grey Amber*, is a ſolid, opaque, inflammable ſubſtance, of a white grey, ſometimes of a blackiſh colour, which melted or inflamed yields a peculiar ſmell, agreeable to moſt perſons, but diſagreeable to others.

As it occurs in the ſhops, it varies in its conſiſtence, according as it has been expoſed to a warmer or colder air. It is a hard brittle ſubſtance, yet not ſo hard as to admit a poliſh; nor has it, like ſuccinum, a poliſhed appearance or tranſparency. On ſcraping it with a knife into powder, part of it adheres to the cold ſteel like wax; ſo it does alſo to the teeth, if maſticated; it yields alſo the impreſſion of the nail; it has no peculiar but rather an earthy taſte when chewed.

It has in its natural ſtate a peculiar ſtrong ſmell. The older it grows the more it ſeems to become agreeable. This ſmell is rendered more ſenſible by rubbing it with the fingers, or by burning or melting it.

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It melts in a moderate degree of heat into a blackiſh thick oil, and then ſmoaks, ſkums, and flies by degrees entirely off, without leaving any coal behind; ſo it does likewiſe when put upon any heated metal, leaving only a black ſpot upon it: when the metal is red-hot, it melts and inflames inſtantaneouſly, ſmoaks ſtrongly, and flies ſpeedily off, without leaving the leaſt mark behind. When brought near a burning candle, it catches fire immediately, and burns with a clear bright flame till it is conſumed. A red-hot needle eaſily penetrates through its ſubſtance, a blackiſh oil then exſudes, but no part of it ſeems to adhere to the needle; the needle, however, feels afterwards as if it had been put into wax.

It is ſo light, that it ſwims not only upon the ſea, but alſo on the ſurface of freſh water.

Its colour is white grey, or yellowiſh, or blackiſh, the firſt of which is eſteemed the beſt. All ambergriſe, when kept for a certain time, is covered with a kind of white grey duſt like chocolate. When broken it appears to be of a granulated texture; and in ſome pieces it ſeems to be laid on in ſtrata.

It feels rather rough when firſt touched, but, when rubbed with the finger, it feels like hard ſoap, or rather like that kind of ſtone which the mineralogiſts call *Smectis*.

It is found ſwimming upon the ſea, or the ſea-coaſt, or in the ſand near the ſea-coaſt; eſpecially in the Atlantic Ocean, on the ſea-coaſt of Braſil, and that of Madagaſcar; on the coaſt of Africa, of the Eaſt Indies, China, Japan, and the Molucca Iſlands; but moſt of the ambergriſe which is brought to England comes from the Bahama Iſlands, from Providence, &c. where it is found on the coaſt. It is alſo ſometimes found in the abdomen of whales by the whale-fiſhermen, always in lumps of various ſhapes and ſizes, weighing from half an ounce to an hundred and more pounds. The piece, which the Dutch Eaſt India Company bought from the King of Tydor, weighed 182 pounds. An American fiſherman from Antigua found ſome years ago, about 52 leagues ſouth-eaſt from the Windward Iſlands, a piece of ambergriſe in a whale, which weighed about 130 pounds, and ſold for five hundred pounds ſterling.

We are told by all writers on ambergriſe, that ſometimes claws and beaks of birds, feathers of birds, parts of vegetables, ſhells, fiſh, and bones of fiſh, are found in the middle of it, or variouſly mixed with it; but of a very large quantity of pieces which I have ſeen, and which I have carefully examined, I have found none that contained any ſuch thing, though I do not deny, that ſuch ſubſtances may ſometimes be found in it; but the circumſtance which to me ſeems to be the moſt remarkable, is, that in all the pieces of ambergriſe of any conſiderable ſize, whether found on the ſea, or in the whale, which I have ſeen, I have conſtantly found a conſiderable quantity of black ſpots, which, after the moſt careful examination, appear to be the beaks of the Sepia Octopodia. Theſe beaks ſeem to be the ſubſtances which have hitherto been always miſtaken for claws or beaks of birds, or for ſhells.

Having collected a pretty large quantity of them, I beg leave to preſent to the Royal Society ſome ſpecimens, in which the whole ſtructure of theſe beaks is extremely well preſerved. They are accompanied by a beak which Sir JOSEPH BANKS permitted me to take from a cuttle fiſh in his collection, ſo that any gentleman, who will be at the pains to compare them together, will be enabled to convince himſelf of the truth of what I have advanced.

The preſence of theſe beaks in ambergriſe proves evidently, that all ambergriſe containing them is in its origin, or muſt have

have been once, of a very ſoft or liquid nature, as otherwiſe thoſe beaks could not ſo conſtantly be intermixed with it throughout its whole ſubſtance.

In order to come now more cloſely to the point propoſed (viz. to determine the origin and nature of ambergriſe), let us recollect ſome of the principal facts relative to its natural hiſtory.

That ambergriſe is found either upon the ſea and ſea-coaſt, or in the bowels of whales, is a matter of fact, which, I believe, is univerſally credited. But it has never been examined into and determined, whether the ambergriſe found upon the ſea and ſea-coaſt is the ſame as that found in the whale, or whether they are different from one another? Whether that found on the ſea or ſea-coaſt has ſome properties, or conſtituent parts, which that found in the whale has not? And laſtly, Whether that found in the whale is ſuperior or inferior in its qualities and value to the former?

It is likewiſe a matter of conſequence to know, Whether ambergriſe is found in all kinds of whales, or only in a particular ſpecies of them? Whether it is conſtantly and always to be met with in thoſe animals? And, if ſo, in what part of their body it is to be found?

It is further a matter of enquiry, Whether, on thoſe coaſts where ambergriſe is found, there are alſo conſtantly, or only accidentally, whales to be met with? Whether ambergriſe is found there becauſe whales frequent thoſe ſeas, or rather whether whales are there becauſe ambergriſe is to be met with there?

It ought likewiſe to be inveſtigated, Whether all ambergriſe is of the ſame mineral or animal origin? If of the former, whether it is ſwallowed by the whale, and digeſted or changed in ſome manner in its ſtomach? Or, if of the latter, whether it it is an animal production generated in the ſtomach as a kind of bezoar, according to CLUSIUS; or ſecreted in a peculiar bag, according to DUDLEY, &c.? Or laſtly, Whether it is, according to KÆMPFER, the excrement or dung of the whale?

All theſe queſtions ought to be diſcuſſed and preciſely anſwered, before we can determine any thing with certainty about the origin of ambergriſe.

In order to clear up this point, we muſt apply to the perſons who are employed in procuring and ſelling ambergriſe. This is what I have had an opportunity of doing through the kindneſs of Sir JOSEPH BANKS, baronet, whoſe zeal to promote every part of uſeful knowledge is ſo generally known and acknowledged by the public. Sir JOSEPH very obligingly procured me the acquaintance of two captains of ſhips, men of good ſenſe and veracity, who offered to tell me every thing they knew about the matter, and who began with aſſuring me that they would ſpeak only as to what they themſelves had ſeen, and that not once only, but repeatedly, as they have both of them been employed many years in what is called in England the South Fiſhery. I have ſince had an opportunity of converſing on the ſame ſubject with an intelligent native of New England, who before the preſent war broke out was employed for ſeveral years in the ſpermaceti-whale fiſhery from Boſton. From theſe three perſons I have collected the following facts:

Ambergriſe is ſometimes found in the belly of the whale, but in that particular ſpecies only which is called the ſpermaceti whale, and which from its deſcription and delineation appears to be the Phyſeter Macrocephalus Linnæi.

The New England fiſhermen, according to their account, have long known that ambergriſe is to be found in the ſpermaceti whale; and they are ſo convinced of this fact, that whenever they hear of a place where ambergriſe is found, they always conclude that the ſeas in that part are frequented by this ſpecies of whale. It was for this reaſon that a gentleman at Boſton, upon hearing ſeveral years ago that ambergriſe was frequently found on the coaſt of Madagaſcar, immediately propoſed a plan for a ſpermaceti-whale fiſhery in that part of the world. And the two perſons I converſed with on this ſubject have not the leaſt doubt but he would have ſucceeded in the attempt, had not the Eaſt India Company fruſtrated the project, by pretending, that as it was in their territory the right of fiſhery could belong only to them. This was all they did, however, as the plan itſelf they never adopted.

The perſons who are employed in the ſpermaceti-whale fiſhery, confine their views to the Phyſeter Macrocephalus. They look for ambergriſe in all the ſpermaceti-whales they catch, but it ſeldom happens that they find any. Whenever they hook a ſpermaceti-whale, they obſerve, that it conſtantly not only vomits up whatever it has in its ſtomach, but alſo generally diſcharges its fæces at the ſame time; and if this latter circumſtance takes place, they are generally diſappointed in finding ambergriſe in its belly. But whenever they diſcover a ſpermaceti-whale, male or female, which ſeems torpid and ſickly, they are always pretty ſure to find ambergriſe, as the whale in this ſtate ſeldom voids its fœces upon being hooked. They likewiſe generally meet with it in the dead ſpermaceti-whales which they ſometimes find floating on the ſea. It is obſerved alſo, that the whale, in which they find ambergriſe, often has a morbid protuberance; or, as they expreſs it, a kind of gathering in the lower part of its belly, in which, if cut open, ambergriſe is found. It is obſerved, that all theſe whales, in whoſe bowels ambergriſe

bergriſe is found, ſeem not only torpid and ſick, but are alſo conſtantly leaner than others; ſo that, if we may judge from the conſtant union of theſe two circumſtances, it would ſeem that a larger collection of ambergriſe in the belly of the whale is a ſource of diſeaſe, and probably ſometimes the cauſe of its death. As ſoon as they hook a whale of this deſcription, torpid, ſickly, emaciated, or one that does not dung on being hooked, they immediately either cut up the above-mentioned protuberance, if there be any, or they rip open its bowels from the orifice of the anus, and find the ambergriſe, ſometimes in one ſometimes in different lumps of generally from three to twelve and more inches in diameter, and from one pound to twenty or thirty pounds in weight, at the diſtance of two, but moſt frequently of about ſix or ſeven feet from the anus, and never higher up in the inteſtinal canal, which, according to their deſcription, is, in all probability, the inteſtinum cœcum, hitherto miſtaken for a peculiar bag made by nature for the ſecretion and collection of this ſingular ſubſtance. That the part they cut open to come at the ambergriſe is no other than the inteſtinal canal is certain, becauſe they conſtantly begin their inciſion at the anus, and find the cavity every where filled with the fæces of the whale, which from their colour and ſmell it is impoſſible for them to miſtake. The ambergriſe found in the inteſtinal canal is not ſo hard as that which is found on the ſea or ſea-coaſt, but ſoon grows hard in the air: when firſt taken out it has nearly the ſame colour, and the ſame diſagreeable ſmell, though not ſo ſtrong, as the more liquid dung of the whale has; but, on expoſing it to the air, it by degrees not only grows greyiſh, and its ſurface is covered with a greyiſh duſt like old chocolate, but it alſo loſes its diſagreeable ſmell, and, when kept for a certain length of time, acquires the peculiar odour which is ſo agreeable to moſt people.

The gentlemen I converſed with confeſſed, that if they knew not from experience that ambergriſe thus found will in time acquire the above-mentioned qualities, they would by no means be able to diſtinguiſh ambergriſe from hard indurated fæces. This is ſo true, that whenever a whale voids its fæces upon being hooked, they look carefully to ſee if they cannot diſcover among the more liquid excrements (of which the whale diſcharges ſeveral barrels) ſome pieces floating on the ſea, of a more compact ſubſtance than the reſt; theſe they take up and waſh, knowing them to be ambergriſe.

From this account it appears therefore clearly, that CLUSIUS is quite wrong in aſſerting that ambergriſe is a phlegmatic recrement, or indurated undigeſtible part of the food collected and found in the ſtomach of the whale, in the ſame manner as the bezoars are found in the ſtomach of other animals. It appears further, that what DUDLEY ſays, in Phil. Tranſ. vol. XXIII. from an account he received from a whale-fiſherman, one Mr. ATKINS, of Boſton in New England, who was one of the firſt who went out a fiſhing for the ſpermaceti-whale about the year 1720, viz. that the ambergriſe found in whales is a kind of animal production like muſk and caſtoreum, &c. ſecreted and collected in a peculiar bag or bladder, which is furniſhed with an excretory duct or canal, the ſpout of which runs tapering into and through the length of the penis; and that this bag, which lies juſt over the teſticles, is almoſt full of a deep orange-coloured liquor, not quite ſo thick as oil, of the ſame ſmell as the balls of ambergriſe, which float and ſwim looſe in it; which colour and liquor may alſo be found in the canal of the penis; and that therefore ambergriſe is never to be found in any female, but in the male only, is equally deſtitute of truth. The aſſertions are not only deſtitute of truth, but alſo contrary to the laws of the animal œconomy; for, in the firſt place, the gentlemen whom I conſulted have repeatedly found ambergriſe in males as well as females; they think, however, to have remarked, that the ambergriſe found in females is never in ſuch large pieces, or of ſo good a quality, as that which is found in males. 2dly, No man, who has the leaſt knowledge in anatomy and the animal œconomy, will ever believe that organiſed bodies, ſuch as the beaks of the Sepia, which are ſo conſtantly found in ambergriſe taken out of the whale, can have been abſorbed from the inteſtines by the lacteals or lymphatics, and collected with the ambergriſe in the bag mentioned by ATKINS and DUDLEY. If either of thoſe perſons had known the nature of theſe ſubſtances, and had had the leaſt knowledge of the different ſecretions in animal bodies, they would certainly never have ventured to give ſuch a deſcription as a true one.

KÆMPFER, who has given us ſo many other faithful accounts in Natural Hiſtory, ſeems to come nearer the truth with regard to the origin of ambergriſe, when he ſays, that it is the dung of the whale; and that the Japaneſe, for this reaſon, call it, Kuſura no fuu, *i. e.* Whale's Dung; but this relation, though founded on obſervation, has never obtained credit, and has been conſidered rather as a fabulous ſtory, with which the Japaneſe impoſed upon him, who had himſelf no direct obſervation to prove the fact.

This matter therefore remained a ſubject of great doubt, and it was generally thought to be more probable, that ambergriſe, after having been ſwallowed, and ſomehow or other changed in the ſtomach and bowels of the whale, was found among its excrements. But in order to diſcuſs this matter fully, and bring it nearer to that degree of certainty which I propoſed at the beginning of this paper, it will now be proper to examine the principal queſtion, Whether all ambergriſe is generated in the bowels of the whale, or whether it is ſimply an extraneous ſubſtance taken in with the food? In order to elucidate this matter, it will be neceſſary to reſolve the following queſtions:

1ſt. Whether there is any material difference between ambergriſe found upon the ſea or ſea-coaſt, and that found in the bowels or among the dung of the whale, either with regard to its qualities and chemical principles, or with reſpect to the heterogeneous ſubſtances that are mixed with it? And 2dly, If there is any ſuch difference, in what does it conſiſt?

From the moſt exact information I have been able to procure on this ſubject, I find that what ſeveral authors have aſſerted, that all ambergriſe found in whales is of an inferior quality, and therefore much leſs in price, is deſtitute of truth. Ambergriſe is only valued for its purity, lightneſs, compactneſs, colour, and ſmell. There are pieces of ambergriſe found on different coaſts, which are of a very inferior quality, whereas there are often found pieces of it in whales of the firſt value; nay, ſeveral pieces found in the ſame whale, according to the above-mentioned qualities, are more or leſs valuable. All ambergriſe found in whales has at firſt when taken out of the inteſtines very near the ſame ſmell as the liquid excrements of that animal have; it has then alſo nearly the ſame blackiſh colour: they find it in the whale ſometimes quite hard, ſometimes rather ſoftiſh, but never ſo liquid as the natural fæces of that animal. And it is a matter of fact, that, after being taken out and kept in the air, all ambergriſe grows not only harder and whiter, but alſo loſes by degrees its ſmell, and aſſumes ſuch an agreeable one, as that in general has which is found ſwimming upon the ſea; therefore the goodneſs of ambergriſe ſeems rather to depend on its age. By being accumulated after a certain length of time in the inteſtinal canal, it ſeems even then to become of a whiter colour, and leſs ponderous, and acquire its agreeable ſmell. The only reaſon why ambergriſe found floating on the ſea generally poſſeſſes the above-mentioned qualities in a ſuperior degree, is becauſe it is commonly older, and has been longer expoſed to the air. It is more frequently found in males than females; the pieces found in females are in general ſmaller, and thoſe found in males ſeem conſtantly to be larger and of a better quality, and therefore the high price in proportion to the ſize is not merely imaginary for the rarity-ſake, but in ſome reſpect well founded, becauſe ſuch large pieces appear to be of a greater age, and poſſeſs the above-mentioned qualities in general in a higher degree of perfection than ſmaller pieces.

Having diſcovered, as I juſt now mentioned, beaks of the cuttle fiſh in all the pieces of ambergriſe I had an opportunity of examining, it now remained to be aſcertained, how thoſe beaks became ſo conſtantly mixed with ambergriſe? In proſecuting this enquiry, I had the ſatiſfaction to learn from the ſame perſons who gave me the information above-mentioned, that the Sepia Octopodia, or cuttle fiſh, is the conſtant and natural food of the ſpermaceti-whale, or Phyſeter Macrocephalus. Of this they are ſo well perſuaded, that whenever they diſcover any recent relics of it ſwimming on the ſea, they conclude that a whale of this kind is, or has been, in that part. Another circumſtance which corroborates this fact is, that the ſpermaceti-whale on being hooked generally vomits up ſome remains of the Sepia *.

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* It will not be improper here to remark, to what an enormous ſize this ſpecies of Sepia grows in the ocean. One of the gentlemen who was ſo kind as to communicate

From what I have ſaid, we may eaſily account for the many beaks, or pieces of beaks, of the Sepia found in all ambergriſe.

The beak of the Sepia is a black horny ſubſtance, and therefore paſſes undigeſted through the ſtomach into the inteſtinal canal, where it is mixed with the fæces; after which it is either evacuated with them, or if theſe latter be preternaturally retained, forms concretions with them, which render the animal ſick and torpid, and produce an obſtipation, which ends either in an abſceſs of the abdomen, as has been frequently obſerved, or becomes fatal to the animal; whence in both the caſes, on the burſting of its belly, that hardened ſubſtance, known under the name of ambergriſe, is found ſwimming on the ſea, or thrown upon the coaſt.

From the preceding account, and my having conſtantly found the above-mentioned beaks of the Sepia in all pieces of ambergriſe of any conſiderable ſize, I think we may venture to conclude, that all ambergriſe is generated in the bowels of the Phyſeter Macrocephalus, or ſpermaceti-whale, and there mixed with the beaks of the Sepia Octopodia, which is the principal food of that whale; and we may therefore define ambergriſe to be the preternaturally hardened dung or fæces of the Phyſeter

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municate to me his obſervations on this ſubject, about ten years ago hooked a ſpermaceti-whale that had in its mouth a large ſubſtance with which he was unacquainted, but which proved to be a dentaculum of the Sepia Octopodia, nearly 27 feet long: this dentaculum however did not ſeem to be entire, one end of it appearing in ſome meaſure corroded by digeſtion, ſo that in its natural ſtate it may have been a great deal longer. With regard to its being a dentaculum of the cuttle fiſh, the fiſhermen could not have been miſtaken, as they themſelves often feed upon the ſmaller ſort of the ſame Sepia. When we conſider the enormous bulk of the dentaculum of the Sepia here ſpoken of, we ſhall ceaſe to wonder at the common ſaying of the fiſhermen, that the cuttle-fiſh is the largeſt fiſh of the ocean.

Macrocephalus, mixed with ſome indigeſtible relics of its food.

There now remains only one objection to be obviated on this ſubject, and this relates to the chemical analyſis of ambergriſe*.

NEUMANN obtained from one drachm of ambergriſe five grains of an acid phlegm, two ſcruples and an half of empyreumatic oil, and two grains of a volatile acid ſalt in a cryſtalline form.

Now if all ambergriſe owes its origin to the animal kingdom in the manner we have ſtated, how are we to account for the acid obtained from it by diſtillation? Would not ambergriſe, if it was really of an animal nature, like all other fæces of animals feeding upon animal food, yield a volatile alkali? I confeſs this ſeems to be a material objection; but I reply to it, firſt, that although my experiments made upon unadulterated ambergriſe confirm thoſe made by NEUMANN, GRIM, BROWNE, and GEOFFROY; yet from that analyſis it does, in my opinion, by no means follow, that ambergriſe is not an animal product.

Two eminent chemiſts, Mr. SCHEELE, and my friend Mr. BERGMAN, profeſſor of chemiſtry at Upſal, have lately diſcovered that human calculi of the bladder, though of an animal origin, are nothing elſe but a peculiar concrete acid, approaching in its qualities very nearly to the native vegetable acid: and Profeſſor CRELL has lately ſhewn, in a paper preſented to the Royal Society, that the preſence of an acid, far from proving any thing againſt an animal ſubſtance, is to be found in the fat of all animals. This indeed proves as little as if I ſhould conclude on the oppoſite ſide of the queſtion, that becauſe the cruciform plants yield firſt a volatile alkali in diſtillation, they are of an animal nature. This, however, I have by repeated experiments with Cochlaria, Naſturtium, &c. ſeen to be conſtantly the caſe. With regard to the nature of the acid which is obtained by diſtillation from ambergriſe, nobody has hitherto to my knowledge examined it; and the experiments I made upon it are inſufficient to ſay any thing poſitive about it.

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* Chemiſtry ſhews that in all animal excrements an acid is preſent, though different from that found in ambergriſe. Beſides, we do not know whether the marine acid of the ſea-water in which theſe animals conſtantly live, has not a ſhare in changing the nature of their fæces; nor whether the fæces of all cetaceous animals are perhaps by their chemical analyſis not materially different from thoſe of animals living on the Continent. We have a chemical analyſis of theſe latter, but none has been hitherto made of the former.

The great price of ambergriſe (an ounce of it being now ſold in London for one pound ſterling) has been hitherto the cauſe of its being ſo often adulterated, and of its being ſo little examined by chemiſts. If, however, a chemical analyſis of its acid ſhould be made, we ought to be certain that the ambergriſe employed has not been previouſly adulterated, eſpecially as it is but too common to find it adulterated with flower of rice, or with ſtyrax or other reſins, which might deceive us in forming a ſolid judgement about the real nature of its acid. The adulteration of ambergriſe with any of the heterogenous ſubſtances may be diſcovered by its not having all the qualities mentioned above as requiſite for the pureſt and beſt ambergriſe.

The uſe of ambergriſe in Europe is now nearly confined to perfumery, though it has formerly been recommended in phyſic by ſeveral eminent phyſicians; hence the Eſſentia Ambræ Hoffmanni, Tinctura Regia Cod. Pariſini, Trochiſci de Ambra Ph. Wurtemberg, &c. &c.

If we wiſh to ſee any medicinal effects from this ſubſtance, we muſt certainly not expect them from two or three grains, but give rather as many ſcruples of it for a doſe; though even then I ſhould not expect much effect from it, as I have taken of pure unadulterated ambergriſe in powder 30 grains at once, without

without obſerving the leaſt ſenſible effect from it. A ſailor, however, who had the curioſity to try the effect of recent ambergriſe upon himſelf, took half an ounce of it melted upon the fire, and found it a good purgative; which proves, that it is not quite an inert ſubſtance.

In Aſia and part of Africa ambergriſe is not only uſed as a medicine and as a perfume, but a great uſe is alſo made of it in cookery, by adding it to ſeveral diſhes as a ſpice; a great quantity of it is alſo conſtantly bought by the Pilgrims who travel to Mecca, probably to offer it there, and make uſe of it in fumigations, in the ſame manner as frankincenſe is uſed in Catholic countries. The Turks make uſe of it as an aphrodiſiac. Our perfumers add it to ſcented pillars, candles, balls or bottles, gloves, and hair-powder; and its eſſence is mixed with pomatums for the face and hands, either alone or mixed with muſk, &c. though its ſmell is to ſome perſons extremely offenſive.

Having now finiſhed my remarks about ambergriſe, I ſhall conclude this paper with ſome new obſervations concerning the ſebaceous ſubſtance generally called Spermaceti, and the whale from which it is obtained.

I mentioned above that it is only one kind of whale from which our fiſhermen obtain the ſpermaceti, which they call for this reaſon the Spermaceti Whale: in this ſame fiſh it is that they find ambergriſe. They never ſearch after the Phyſeter Catodon, the Phyſeter Microps, Phyſeter Turſio, and others of the ſame genus; but they aim at taking both the male and female of the Phyſeter Macrocephalus, though the male contains not only a larger quantity, but alſo in their opinion a better quality of ſpermaceti.

1ſt. It is to be obſerved, that this ſpecies has but one ſpout *(fiſtula)*. This ſpout is not, as hath been generally hitherto aſſerted, in the neck *(cervix)* of the fiſh, but in its front, and on the very edge of the head, bending obliquely on the left ſide, ſo that whenever he ſpouts it is always on that ſide only.

2dly. It is alſo remarkable, that the female of this whale has a power of drawing back its breaſts after it has ſuckled the calf, ſo that it hardly appears to have any prominence on the belly, whereas when it ſuckles they hang out very long.

3dly. It is not true, though it has hitherto been aſſerted, that the ſubſtance which we ſo abſurdly name Spermaceti, and which perhaps might with much greater propriety be called Sevum Phyſeteris, is found in the ventricles of the brain, and in the cavity of the ſpinal marrow of the Phyſeter Macrocephalus. This fat ſubſtance, which is nothing but a kind of ſuet, undoubtedly formed for ſome particular purpoſe of that whale, is contained in a peculiar bony triangular cavity or trunk, which is lodged near the brain, and occupies nearly the whole upper part of the head. This trunk has no communication with the brain, but is entirely ſeparated from it by its bony laminas. The brain, as in all other fiſhes, is very ſmall in compariſon with the ſize of the whale, and lies directly behind the eyes.

In order to know whether the trunk in which the ſpermaceti is lodged had any connection with the brain of the whale, one of the above-mentioned gentlemen had the curioſity to lance that trunk, which in its upper part is only covered with the ſkin, he found the whale not in the leaſt affected by this, but on the brain being lanced, the ſame whale died immediately.

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